

### **REMARKS**

Claims 1-10 were in the application as filed. Applicants provisionally elected claims 1-7 for examination in response to a restriction requirement. By the present amendment, claim 2 is canceled without prejudice, and claims 1, 3, 5, 6, 8, and 9 are amended. No new matter is introduced by the foregoing amendments. Claims 8-10 are deemed withdrawn. But Applicants respectfully request further consideration and examination of *all* of the claims in accord with the foregoing amendments and the following remarks.

#### **Unity of Invention**

The Examiner identifies three distinct inventions that are asserted to be not so linked as to form a single general inventive concept under PCT Rule 13.1. The Examiner's requirement for restriction is traversed.

It will be appreciated that upon entry of the foregoing amendment, all of dependent claims 3-10 depend directly or indirectly from claim 1. The technical feature of claim 1 common to all claims is a *specific* method of treating a spent potliner, and more particularly, unique mixing and blending steps. Contrary to the Examiner's assertion, the Snodgrass et al. '740 patent *does not* disclose a method substantially identical to the method of claim 1. Rather, while the Snodgrass et al. '740 patent discloses mixing the residue with water, the residue is leached with water or dilute caustic merely to neutralize the residue so it can be used as landfill. In claim 1 the residue is specifically mixed with water in a controlled environment to neutralize the compounds which give off dangerous gases while ensuring the end product still has calorific value and other mineral values for use when blended with other chemicals and minerals as an end product, not landfill. Moreover, the Snodgrass et al. '740 patent discloses blending the treated ash residue with lime to ensure it can be used as a landfill, *not* to provide mineral products. There is no attempt to blend the residue with minerals and other chemicals so it can be used as a useful product. The mixing and blending of the residue in the Snodgrass et al. '740 patent is merely to ensure that the residue is safe for disposal. In claim 1, the blending step is to provide useful mineral products.

Because the mixing and blending steps of claim 1 form a single general inventive concept found in all claims, unity of invention is clearly present and the restriction is inappropriate.

Applicants respectfully request withdrawal of the requirement for restriction, but provisionally elect the invention of claims 1-7, should the requirement be made final.

### **Rejections under 35 U.S.C. §103**

Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable under the Gamson '017 patent in view of the Snodgrass et al. '740 patent. The rejection is respectfully traversed.

Setting aside the issue of whether or not it would have been obvious to one of ordinary skill to combine the teachings of the Gamson '017 patent and the Snodgrass et al. '740 patent, which assertion is not conceded, the alleged combination does not reach the claimed invention.

The fundamental difference between the claimed invention and the cited references, either alone or in combination, is that in the subject application spent pot liners are treated to remove the harmful substances and then blended with other chemicals and minerals to provide a useful mineral product. The useful mineral product is not landfill.

In contrast, both cited references disclose only methods for treating spent pot liners where the primary purpose is the recovery of fluorine values and the neutralization of the residue so that it can be used as landfill. There are serious environmental issues concerning the use of this residue as landfill. The whole purpose of the invention of the subject application is that there is no residue which has to be used as landfill. Rather, the residue of a smelter is completely used up in a useful manner. Because Applicants seek to blend and reuse the residue, important constituents such as fluorines and carbon are kept in the residue because they have useful roles to play in the ultimate end use of the blended material. Thus, the present invention does not remove the fluorine values as its prime purpose; instead and unlike the cited references, the fluorine values are kept in the residue. Similarly, the method of the present invention does not crush the material to extremely small sizes and then burn off the carbon at temperatures of over 800°C as taught, for example, by the Snodgrass et al. '740 patent. Rather, the carbon material is specifically recovered for its calorific value for use in other industries.

The process of the claimed invention is also specifically concerned with neutralization of the reactive compounds which are a potential source of flammable gases. This neutralization is carried out through mixing water with the hot material in a controlled environment. The water is sprayed into a chamber at about 650°C, causing the residue to cool rapidly and the particles to

fracture with the water penetrating to create an ultimately safe product. Fracturing of the particles and the water penetration increases the surface area for the ultimate reaction with water. The gases which are given off are then burnt and can, in fact, be used to assist the operation of the furnace.

The Examiner asserts that the Snodgrass et al. '740 patent discloses blending the treated ash residue with other chemicals and minerals to provide mineral products. In fact, however, it does nothing of the sort. The process in the Snodgrass et al. '740 patent discloses after the mixing step with water (6) only a solid residue treated with a calcium source (7), e.g., lime, after which the solid residue, calcium fluoride, is sent to a disposal site (8). Nowhere does the Snodgrass et al. '740 patent teach or suggest blending the cured residue with other chemicals and minerals to provide useful mineral products as required in Claim 1. Whatever mixing and blending is taught in the Snodgrass et al. '740 patent is merely to ensure that the residue is safe for disposal. Because the alleged combination does not reach the invention of claim 1, the claim cannot be said to be unpatentable over the alleged combination. And since claims 3-10 all depend directly or indirectly from claim 1, they are likewise patentable over the alleged combination.

### CONCLUSION

Inasmuch as the asserted combination of references does not render the claims obvious under 35 U.S.C. §103 and no rejection under any other ground is established, the claims are believed patentable, and early notice of allowability is respectfully requested.

Any questions about the foregoing can be directed to the undersigned and the Examiner is invited to resolve any remaining issues by telephone or by email.

Respectfully submitted,

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